Dataset: Alongtrack data collected continuously by the ship's underway acquisition system from ARSV Laurence M. Gould cruise LMG1110 in the Southern Ocean in 2011

Project(s): Population ecology of Salpa thompsoni based on molecular indicators (Salp_Antarctic)

Abstract: This alongtrack data set consists of a single file produced for each day of the LMG1110 cruise, from 11/2/2011 to 12/1/2011. The LMG alongtrack data acquisition systems continuously log data from a suite of instruments throughout the cruise. Data were obtained primarily by applying calibrations to raw data and decimating to whole point intervals. However, several fields are derived measurements from more than a single raw input. For a complete list of measurements, refer to the supplemental document 'Field_names.pdf', and a full dataset description is included in the supplemental file 'Dataset_description.pdf'. The most current version of this dataset is available at: http://www.bco-dmo.org/dataset/3636

Description: Data collected along the ship's track for LMG1110, Antarctic.

This alongtrack data set consists of a single file produced for each day of the LMG1110 cruise, from 11/2/2011 to 12/1/2011. Data were obtained primarily by applying calibrations to raw data and decimating to whole point intervals. However, several fields are derived measurements from more than a single raw input.

IEDA has published a DOI for another version of this dataset: 'Underway Hydrographic, Weather and Ship-state Data (JGOFS) from Laurence M. Gould expedition LMG1110 (2011)' 10.1594/IEDA/318148

Acquisition Description: The LMG alongtrack data acquisition systems continuously log data from a suite of instruments throughout the cruise.

For information about events and known problems with acquisition, see the Cruise Data Report.

Processing Description: **BCO-DMO Processing Notes and Edits:** BCO-DMO obtained the data in .dat format and made the following edits: Space and tab delimiters were replaced with commas. Values originally used to indicate null, unusued, or unknown values (i.e. "9999" or "999.99") were replaced with "nd". Two columns that were labeled "Not used" were omitted from display (these were columns 11 and 20 in original .dat files). Original time in format of hh:mm:ss was removed from display. "time_gmt", "month_gmt", "day_gmt" and "yrday" were calculated and added to the display.

Deployment Information

Deployment description for ARSV Laurence M. Gould LMG1110

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UNOLS STRS record: http://strs.unols.org/Public/diu_cruise_view.aspx?cruise_id=127242 The primary science objectives of the cruise are to examine genome-wide patterns of gene expression, target gene expression levels, and patterns of population genetic diversity and structure of the Antarctic salp, Salpa thompsoni in relation to biological and physical environmental parameters in the Western Antarctic Peninsula region. High-frequency acoustics data will be used to provide information about the distribution of salps, krill, and other zooplankton. Sampling from shelf and oceanic waters between 0 and 2,000 meters will take place at selected stations using a 1-meter^2 MOCNESS to characterize the planktonic assemblage, and a Reeve net to collect live material for molecular and biochemical analysis. Environmental parameters to be measured include standard hydrographic variables (temperature, salinity, and depth), as well as fluorescence and turbidity. Water samples will be collected using a CTD rosette to determine chlorophyll concentration. An additional science objective is to develop a method of using acoustics to assess the abundance and distribution of salps in the Southern Ocean. Cruise Data Report

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Instrument Information

Instrument	Photosynthetically Available Radiation Sensor
Description	Biosph. Instr. QSR-240P
Generic Instrument Name	Photosynthetically Available Radiation Sensor
Generic Instrument Description	A PAR sensor measures photosynthetically available (or active) radiation. The sensor measures photon flux density (photons per second per square meter) within the visible wavelength range (typically 400 to 700 nanometers). PAR gives an indication of the total energy available to plants for photosynthesis. This instrument name is used when specific type, make and model are not known.

Instrument	Radiometer
Description	Biosh. Inst. GUV-2511. For more information, search on "GUV Series" at Biospherical Instruments.
Generic Instrument	Radiometer

Name	
Generic Instrument Description	Radiometer is a generic term for a range of instruments used to measure electromagnetic radiation (radiance and irradiance) in the atmosphere or the water column. For example, this instrument category includes free-fall spectral radiometer (SPMR/SMSR System, Satlantic, Inc), profiling or deck cosine PAR units (PUV-500 and 510, Biospherical Instruments, Inc). This is a generic term used when specific type, make and model were not specified.

Instrument	Anemometer
Description	Gill Ultrasonic Wind Observer II; provided continuous measurement of port wind speed and direction. Further informaiton is in the instrument datasheet.
Generic Instrument Name	Anemometer
Generic Instrument Description	An anemometer is a device for measuring the velocity or the pressure of the wind. It is commonly used to measure wind speed. Aboard research vessels, it is often mounted with other meteorological instruments and sensors.

Instrument	Barometer
Description	R.M. Young 61201
Generic Instrument Name	Barometer
Generic Instrument Description	A barometer is an instrument used to measure atmospheric pressure. There are many types of barometers identified by make and model and method of measurement.

Instrument	Precision Spectral Pyranometer
Description	Eppley PSP; measures shortwave radiation
Generic Instrument Name	Precision Spectral Pyranometer

Generic Instrument Description	This radiometer measures sun and sky irradiance in the range of wavelengths 0.285 to 2.8 microns, including most of the solar spectrum. The PSP is intended to weight the energy flux in all wavelengths equally. It is a "hemispheric receiver" intended to approximate the cosine response for oblique rays. The Eppley Precision Spectral Pyranometer (PSP) is primarily used where high accuracy is required or where it is used to calibrate other pyranometers. The PSP outputs a low level voltage ranging from 0 to a maximum of about 12mV depending on sensor calibration and radiation level. An instruction manual provided by Eppley contains the sensor calibration constant and serial number. The Precision Spectral Pyranometer is a World Meteorological Organization First Class Radiometer and comes with a calibration certificate traceable to the World Radiation Reference and a temperature compensation curve. More information is available from Eppley Labs.

Instrument	Fluorometer
Description	WET Labs ECO-FL (Serial Number FLRTD-399); provides continuous operation when powered, with 6,000-m depth rating. Further information about this instrument is in the user's guide.
Generic Instrument Name	Fluorometer
Generic Instrument Description	A fluorometer or fluorimeter is a device used to measure parameters of fluorescence: its intensity and wavelength distribution of emission spectrum after excitation by a certain spectrum of light. The instrument is designed to measure the amount of stimulated electromagnetic radiation produced by pulses of electromagnetic radiation emitted into a water sample or in situ. This instrument designation is used when specific make and model are not known.

Instrument	Hygrometer
Description	Model: R.M. Young 41372LC; Probe used to measure Air Temp and Relative Humidity on LMG1110 cruise. Calibrated range: -50 to 50 degrees C. More information on this instrument is available from Campbell Scientific.
Generic Instrument	Hygrometer

Name	
Generic Instrument Description	Hygrometers are used for measuring relative humidity. This term is used when details of the make, model number and measurement principle are not known.

Instrument	Eppley Longwave Radiometer
Description	Eppley PIR; measures longwave radiation
Generic Instrument Name	Eppley Longwave Radiometer
Generic Instrument Description	The Eppley Precision Infrared Radiometer (PIR) pyrgeometer measures longwave (infrared) radiation. It is housed in a weatherproof titanium canister that has been painted with a very flat black paint that absorbs radiation. A small glass dome at the top of the instrument is covered with an 'interference coating' which allows only infrared radiation to come through. Light levels are detected as temperature changes creating voltages in fine wire coil detectors. more from Eppley Labs

Instrument	Global Positioning System Receiver
Description	Trimble 20636-00SM, Seapath 330, Garmin 17
Generic Instrument Name	Global Positioning System Receiver
Generic Instrument Description	The Global Positioning System (GPS) is a U.S. space-based radionavigation system that provides reliable positioning, navigation, and timing services to civilian users on a continuous worldwide basis. The U.S. Air Force develops, maintains, and operates the space and control segments of the NAVSTAR GPS transmitter system. Ships use a variety of receivers (e.g. Trimble and Ashtech) to interpret the GPS signal and determine accurate latitude and longitude.

Instrument	MicroTSG Thermosalinograph
Description	SeaBird 45; used for continuous measure of salinity. For further information, see the spec sheet.
Generic	

Instrument Name	MicroTSG Thermosalinograph
Generic Instrument Description	An externally powered, high-accuracy instrument, designed for shipboard determination of sea surface (pumped-water) conductivity and temperature. Salinity and sound velocity can also be computed.

Instrument	Wet Labs CSTAR Transmissometer
Description	Wet Labs C-Star 25 cm deep. For more information, see the spec sheet.
Generic Instrument Name	Wet Labs CSTAR Transmissometer
Generic Instrument Description	A highly integrated opto-electronic design to provide a low cost, compact solution for underwater measurements of beam transmittance. The instrument is capable of either free space measurements, or through the use of an optical flow tube, flow-through sampling with a pump. It can be used in profiling, moored, or underway applications. more information from Wet Labs

Instrument	Thermometer
Description	SeaBird 38 Digital Remote Thermometer used to measure sea surface temperature. For further information, see the spec sheet.
Generic Instrument Name	Water Temperature Sensor
Generic Instrument Description	General term for an instrument that measures the temperature of the water with which it is in contact (thermometer).

Instrument	Gyro
Description	Raytheon Anschutz gyro.
Generic Instrument Name	Gyro
Generic	

Instrument Description	Compass with a motorized gyroscope that tracks true north (heading).